

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference N80386NP/MPJ	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 03313	International filing date (day/month/year) 25/08/2000	(Earliest) Priority Date (day/month/year) 27/08/1999
Applicant BRITAX WINGARD LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

1,2



None of the figures.

INTERNATIONAL SEARCH REPORT

National Application No
PCT/GB 00/03313

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B60Q1/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B60Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 370 606 A (TROVATO) 9 June 1978 (1978-06-09) figures 1-4	1-4,7
X	US 5 255 164 A (EIDELMAN) 19 October 1993 (1993-10-19) abstract; figures 1,2	1-4,7
X	DE 43 05 653 A (MERCEDES-BENZ AG) 10 March 1994 (1994-03-10) abstract; figures 1-3	1-4,7
X	WO 82 00272 A (YOUNG) 4 February 1982 (1982-02-04) abstract; figures 1-4	1-4,7
	-/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

21 November 2000

Date of mailing of the international search report

28/11/2000

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Onillon, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/03313

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 947 677 A (STEINLE) 30 March 1976 (1976-03-30) abstract; figures 1,2 ---	1,5-7
X	FR 2 760 419 A (PELAEZ CABRERA) 11 September 1998 (1998-09-11) abstract; figure 1 ---	1,5-7
X	US 2 325 403 A (ILLIANO) 27 July 1943 (1943-07-27) figures 1,2 -----	1,5-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/03313

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2370606	A	09-06-1978	DE 2751029 A	24-05-1978
US 5255164	A	19-10-1993	NONE	
DE 4305653	A	10-03-1994	NONE	
WO 8200272	A	04-02-1982	EP 0055732 A	14-07-1982
			JP 57501022 T	10-06-1982
US 3947677	A	30-03-1976	NONE	
FR 2760419	A	11-09-1998	NONE	
US 2325403	A	27-07-1943	NONE	

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 28 NOV 2001

Applicant's or agent's file reference N.80386-NP	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB00/03313	International filing date (day/month/year) 25/08/2000	Priority date (day/month/year) 27/08/1999	
International Patent Classification (IPC) or national classification and IPC B60Q1/32			
Applicant BRITAX WINGARD LIMITED			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 22/02/2001	Date of completion of this report 26.11.2001
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Kieslinger, J Telephone No. +49 89 2399 8871



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/03313

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-5 as originally filed

Claims, No.:

1-7 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/03313

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 7.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims 2-4

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/03313

	No:	Claims	1,5,6
Inventive step (IS)	Yes:	Claims	
	No:	Claims	2-4
Industrial applicability (IA)	Yes:	Claims	1-6
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted;
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/03313

REF. ITEM III

See under REF. ITEM VII.2 !

REF. ITEM V

V.1. Prior art

Reference is made to the following documents:

- D1: DE 43 05 653 A (MERCEDES-BENZ AG) 10 March 1994 (1994-03-10)
- D2: FR-A-2 370 606 (TROVATO) 9 June 1978 (1978-06-09)
- D3: GB-A-2 341 365 (cited by the applicant and introduced by the examiner)
- D4: WO 82 00272 A (YOUNG) 4 February 1982 (1982-02-04)
- D5: US-A-3 947 677 (STEINLE) 30 March 1976 (1976-03-30)
- D6: US-A-2 325 403 (ILLIANO) 27 July 1943 (1943-07-27)

V.2. Independent claim 1

The document D1 (as well as D5 and D6) is regarded as being the closest prior art to the subject-matter of claim 1 and shows (the references in parentheses applying to this document):

"A side illumination arrangement for a motor vehicle arranged to illuminate the lower part of the side of the vehicle and the adjacent ground, in which the lights (5,10) are mounted below the level of the bottom of the vehicle windows without requiring any extensive modification to the body panels of the vehicle".

Thus the subject-matter of claim 1 lacks novelty as required by Article 33 (2) PCT.

V.3. Dependent claims

Dependent claims 2 to 6 do not appear to contain features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (claims 5 and 6) or inventive step (claims 2 to 4). These claims suggest only slight constructional changes in the device of claim 1, which - with regard

to D1 to D6 - comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of dependent claims 2 to 6 also lacks novelty or at least an inventive step.

V.4. Industrial Applicability

Claims 1 to 7 seem to fulfil the provisions of Art. 33 (4) PCT, because corresponding illumination devices can be produced and used at least in the vehicle industry.

REF. ITEM VII

VII.1. Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would have been appropriate, with those features known in combination from the closest prior art document being placed in a preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).

VII.2. Claim 7 contains a reference to the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

VII.3. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

VII.4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D5 is not mentioned in the description, nor are these documents identified therein.

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 March 2001 (08.03.2001)

PCT

(10) International Publication Number
WO 01/15934 A1

(51) International Patent Classification⁷: B60Q 1/32

(21) International Application Number: PCT/GB00/03313

(22) International Filing Date: 25 August 2000 (25.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
9920225.1 27 August 1999 (27.08.1999) GB

(71) Applicant (for all designated States except US): **BRITAX WINGARD LIMITED** [GB/GB]; Castle Trading Estate, East Street, Portchester, Hampshire PO16 9SD (GB).

(72) Inventors; and

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Rudolph [GB/GB]; Shoe Cottage, Exton, Hampshire SO3 1NT (GB). **ASSINDER, Andrew, John** [GB/GB]; 47 Crossbush Road, Felpham, Bognor Regis, West Sussex PO22 7LT (GB). **TEAL, Richard** [GB/GB]; 10 Idsworth Road, Cowplain, Waterlooville, Hampshire PO8 8BD (GB).

(74) Agents: **PRICE, Nigel, John, King et al.**; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5LX (GB).

(81) Designated State (national): US.

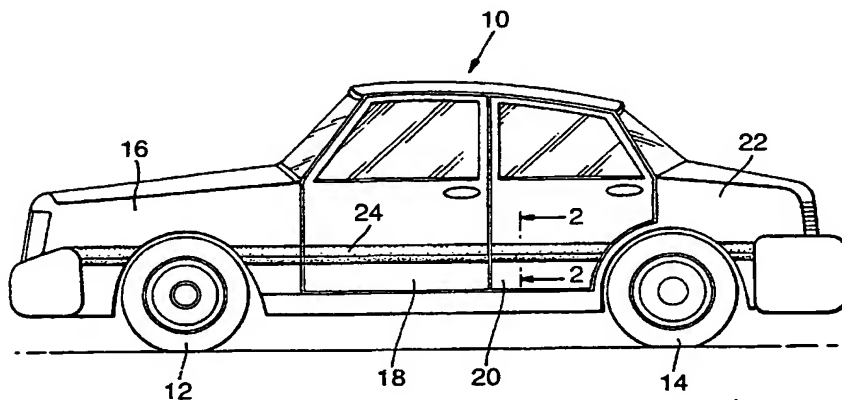
(84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published:

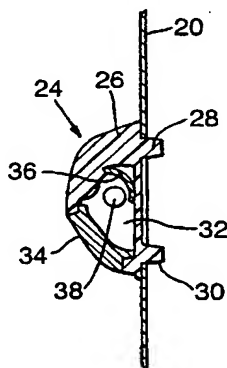
— With international search report.

[Continued on next page]

(54) Title: SIDE ILLUMINATION ARRANGEMENT FOR MOTOR VEHICLE



(57) Abstract: A downwardly directed light (38) is mounted within a horizontally extending rubbing strip (24) on a vehicle door (18) below the level of a window in the door and a light is mounted within said rubbing strip. This arrangement illuminates a lower part of the side of the vehicle and the adjacent ground. Its installation does not require any extensive modification to the body panels of the vehicle.



WO 01/15934 A1

WO 01/15934 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SIDE ILLUMINATION ARRANGEMENT FOR MOTOR VEHICLE

This invention relates to a side illumination arrangement for a motor vehicle arranged to illuminate the ground.

5 Illumination arrangements of this type can serve many purposes. For example, GB-A-894928 discloses an arrangement of this type for the purpose of providing a pool of light on each side of the vehicle in order to enhance its visibility to other drivers. The arrangement
10 comprises six downwardly directed lights on each side of the vehicle mounted in specially provided housings formed in the panels of the vehicle body and located below the level of the bottom of the vehicle windows. This arrangement is relatively expensive to provide because of
15 the necessity to modify vehicle body panels in order to incorporate the light housings.

 DE-A-3635471 discloses an arrangement of this type comprising a light mounted in a vehicle door mirror.

 The vehicle has a door locking system which is operable
20 by means of a hand held remote transmitter and operation of the lights is linked to the door locking system so that the lights are illuminated when the doors are unlocked, thereby illuminating the ground in the vicinity of the vehicle door. This arrangement serves both to illuminate
25 any puddles adjacent to the vehicle door and also to illuminate any malefactor who may be lurking in the vicinity of the vehicle.

 The height at which lights of this type are mounted is a compromise. On the one hand, the area of
30 illumination from a single light can be increased by increasing the height at which the light is mounted. On the other hand, if the lights are mounted below the level of the bottom of the vehicle windows, any tendency to dazzle other road users is reduced.

35 Accordingly, it is an object of the invention to provide a lighting arrangement of the type described above in which the lights are mounted below the level of the

bottom of the vehicle windows without requiring any extensive modification to the body panels of the vehicle.

According to the invention in one aspect, in a motor vehicle having a horizontally extending rubbing strip mounted on each vehicle door below the level of the vehicle windows, a downwardly directed light is mounted within such rubbing strip.

Preferably, a plurality of such lights are provided spaced apart from one another along a respective rubbing strip on each side of the vehicle.

According to the invention in another aspect, a downwardly directed light is mounted inside each wheel arch of a motor vehicle. Such a light provides illumination to assist when it is necessary to change a wheel during the hours of darkness.

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a side view of a motor vehicle equipped with a webbing strip having downwardly directed lights in accordance with the invention;

Figure 2 is a cross-sectional view on the line 2-2 in Figure 1;

Figure 3 is a block diagram of a control system for the lights shown in Figures 1 to 6;

Figure 4 is a side view of one of the wheel arches of a motor vehicle equipped with a downwardly directed light in accordance with the invention;

Figure 5 is a plan view from below of the light shown in Figure 4 with a cover in an open position;

Figure 6 is a cross-sectional view taken on the line 6-6 in Figure 5; and

Figure 7 is a plan view from below similar to Figure 4 but showing the shutter in its closed position.

Figure 1 shows a motor vehicle having front and rear wheels 12 and 14, a front quarter panel 16, a front door 18, a rear door 20 and a rear quarter panel 22

along each of which extends a respective section of a rubbing strip 24, which is made of extruded synthetic rubber or similar resilient or semi-resilient material. The other side of the vehicle is a substantial mirror
5 image of the side illustrated in Figure 1.

Referring to Figure 2, the rubbing strip 24 comprises a moulded body 26 of substantially uniform cross-section along its length and with substantially conical projections 28 and 30 at intervals therealong
10 adapted to project through holes in the vehicle body panels. The projections 28 and 30 are equipped with conventional lateral projections (not shown) arranged to engage with the inner surface of the corresponding body panel such as the body panel 20 so as to hold the strip 24
15 in place.

In accordance with the invention, the body 26 of the rubbing strip 24 contains an elongate recess 32 which has an opening on its lower side enclosed by a translucent lens 34. A reflector 36 extends along the upper and inner
20 end of the recess 32 which also contains a light source 38 which may comprise a row of tungsten filament bulbs, a row of light-emitting diodes or any other convenient lights source as desired. Seal members (not shown) close the ends of the recess 32 each section of the rubbing strip
25 18.

Instead of forming the rubbing strip 24 from extruded material, each section thereof may be formed as an individual moulding, thus avoiding the need for seal members to close the ends of the recess 32 in each
30 section. Electrical conductors for energising the light source 38 may be embedded in such a moulding. As an alternative to providing the recess 32, light emitting diodes may be moulded into each section of the rubbing strip, thus avoiding the need to provide a separate lens
35 34 and reflector 36.

Figure 3 shows a control system for the light source 38, which inhibits energisation when the vehicle 10

is travelling at normal highway speed. The control system includes a pocket-size radio frequency transmitter 40 intended to be carried by the vehicle operator. The transmitter 40 has an antenna 42 for sending a radio frequency signal to a corresponding antenna 44 of a receiver 46 mounted on the vehicle 10. As is conventional, the receiver 46 provides output signals to a remote door lock circuit 48 for locking and unlocking the vehicle doors 18, 20. The transmitter 40 has a first push button 50 for sending a signal to cause the remote door lock circuit to lock the vehicle doors and a second push button 52 for sending a signal to cause the remote door lock circuit 48 to unlock the vehicle doors 18, 20.

The "unlock" output from the receiver 56 is also connected to a controller 54 which also receives an output from a speed sensor 56 and a manual actuator 58. The speed sensor 56 supplies a signal to the controller 54 indicating whether the vehicle speed is less or greater than a threshold value, for example 5 mph. The controller 54 supplies an output signal which both starts a timer 50 and causes energisation of the light source 38. The speed sensor 56 prevents energisation of the light source 38 when the vehicle speed is greater than the aforesaid threshold value. The operation of this system is described in more detail in co-pending UK Patent Application No. 9819517.5 and will not be described here in more detail.

Instead of the speed sensor 56, the controller 54 may be arranged to respond to placing the vehicle in gear, engaging forward gear or starting the engine. Alternatively or additionally, a manual switch inside the vehicle may be arranged to energise the light source 38 and/or to inhibit it from being turned on by the remote transmitter 40.

Referring to Figures 4, 5 and 6, the front wheel 12 of the motor vehicle 10 is located under a wheel arch 70 in which is mounted a light housing 72 containing a

reflector 74 and a light source 76 which may be a tungsten filament lamp or a light-emitting diode. The bottom of the housing 74 has an opening which is covered by a translucent lens 78. The housing 72 has a resiliently mounted lug 80 at one end and a fixed lug 82 at the other.

The lugs 80 and 82 engage with opposite edges of the opening in the wheel arch 70 so as to hold the housing 74 in place.

As can best be seen from Figures 5 and 7, the housing 72 also has two guide tracks 84 and 86 extending on opposite sides of the lens 78. A cover 88 is slidably mounted in the guide tracks 84 and 86 so as to be movable between a position shown in Figure 5 in which the lens 78 is exposed and a position shown in Figure 7 in which the lens 78 is covered. Normally, the cover 88 is in its closed position so as to protect the lens 78 from debris thrown up by the wheel 12. When it is desired to illuminate the adjacent area, for example to assist in changing the wheel 12, the cover 88 can be slid to its open position. Energisation of the bulb 76 is controlled by a manual switch in the vehicle. The wheel arches of the other three wheels of the motor vehicle 10 are preferably equipped with similar lights.

CLAIMS

1. A side illumination arrangement for a motor vehicle arranged to illuminate the lower part of the side of the vehicle and the adjacent ground, in which the
5 lights are mounted below the level of the bottom of the vehicle windows without requiring any extensive modification to the body panels of the vehicle.
2. A side illumination arrangement according to claim 1, wherein the vehicle has a horizontally extending
10 rubbing strip mounted on a vehicle door below the level of a window in said door and a downwardly directed light is mounted within said rubbing strip.
3. A side illumination arrangement according to claim 2, having a plurality of lights spaced apart from
15 one another along said rubbing strip.
4. A side illumination arrangement according to claim 2 or 3, having a respective rubbing strip on each side of the vehicle and a downwardly directed light mounted within each rubbing strip.
- 20 5. A side illumination arrangement according to claim 1, comprising a downwardly directed light mounted inside a wheel arch of a motor vehicle.
6. A side illumination arrangement according to claim 5, wherein a respective downwardly directed light is
25 mounted inside each wheel arch of said motor vehicle.
7. A side illumination arrangement for a motor vehicle, substantially as hereinbefore described with reference to the accompanying drawings.

1/2

Fig.1.

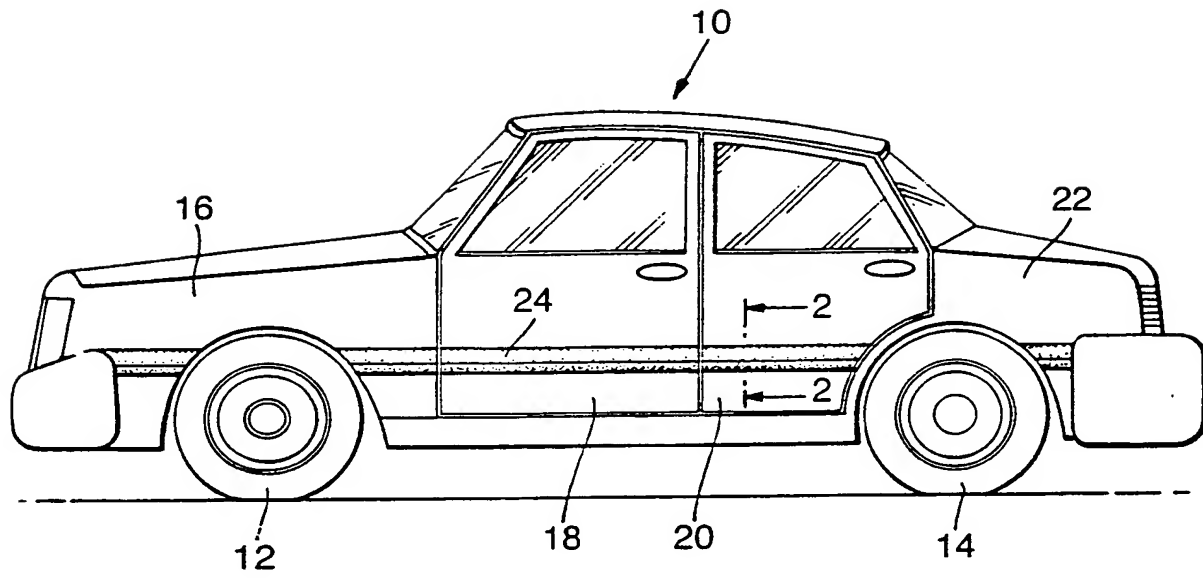
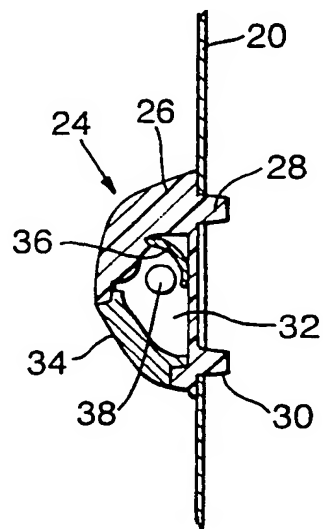
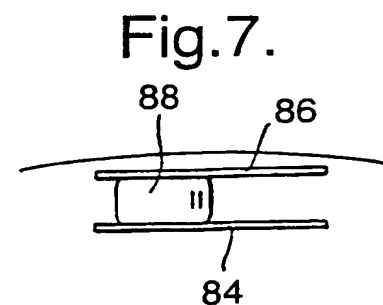
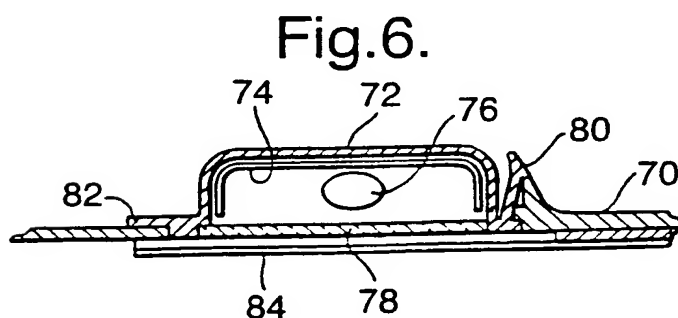
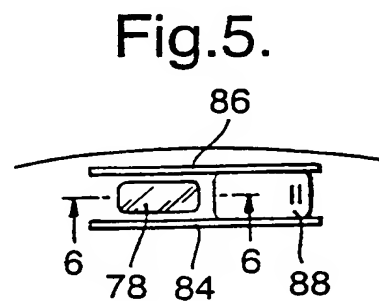
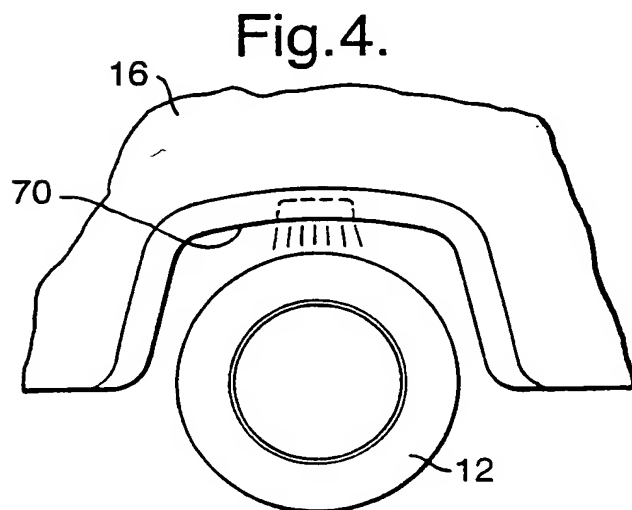
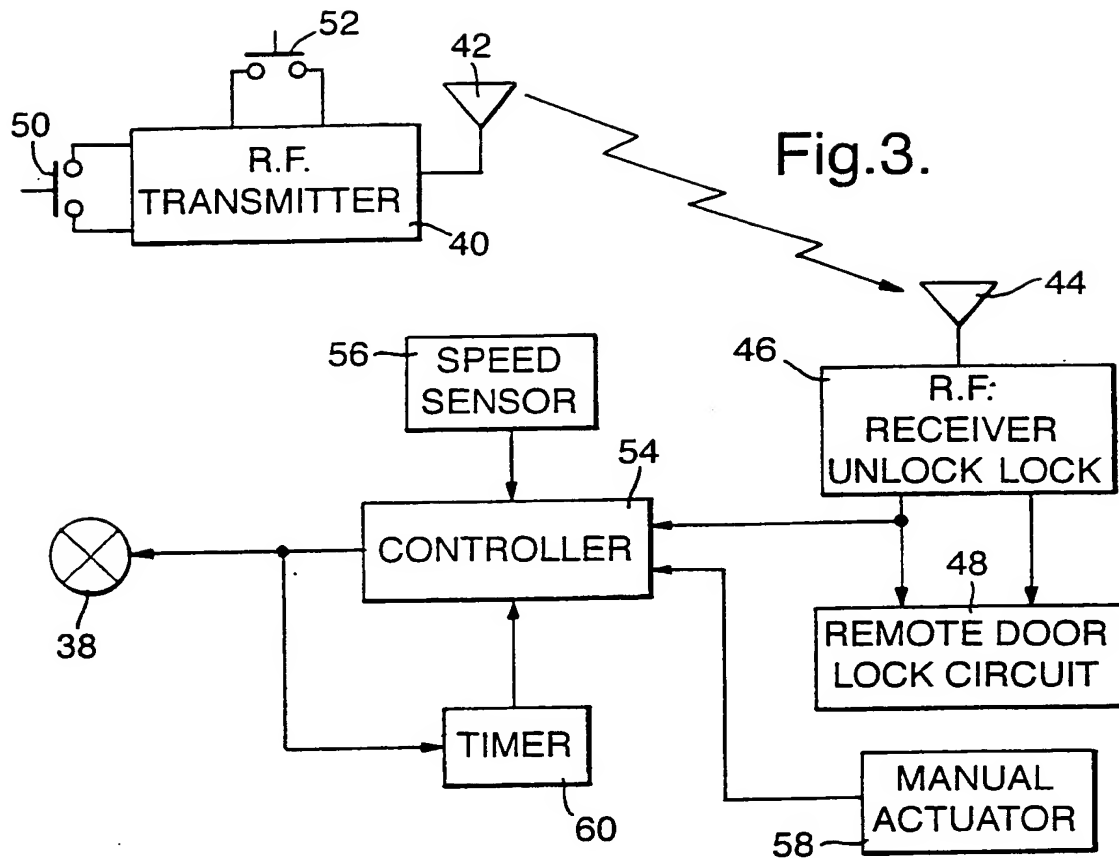


Fig.2.



2/2



INTERNATIONAL SEARCH REPORT

Internat. Application No

PCT/GB 00/03313

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B60Q1/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 370 606 A (TROVATO) 9 June 1978 (1978-06-09) figures 1-4	1-4,7
X	US 5 255 164 A (EIDELMAN) 19 October 1993 (1993-10-19) abstract; figures 1,2	1-4,7
X	DE 43 05 653 A (MERCEDES-BENZ AG) 10 March 1994 (1994-03-10) abstract; figures 1-3	1-4,7
X	WO 82 00272 A (YOUNG) 4 February 1982 (1982-02-04) abstract; figures 1-4	1-4,7
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 947 677 A (STEINLE) 30 March 1976 (1976-03-30) abstract; figures 1,2 ---	1,5-7
X	FR 2 760 419 A (PELAEZ CABRERA) 11 September 1998 (1998-09-11) abstract; figure 1 ---	1,5-7
X	US 2 325 403 A (ILLIANO) 27 July 1943 (1943-07-27) figures 1,2 -----	1,5-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2370606	A	09-06-1978	DE 2751029 A	24-05-1978
US 5255164	A	19-10-1993	NONE	
DE 4305653	A	10-03-1994	NONE	
WO 8200272	A	04-02-1982	EP 0055732 A JP 57501022 T	14-07-1982 10-06-1982
US 3947677	A	30-03-1976	NONE	
FR 2760419	A	11-09-1998	NONE	
US 2325403	A	27-07-1943	NONE	